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EXAMINER	
WANG, KENT F	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/564,286	CARLSSON ET AL.	
	Examiner	Art Unit	
	KENT WANG	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4-8,10-15,17-19,21-26,28-30 and 32-46* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-2, 4-8, 10-15, 17-19, 21-26, 28-30, and 32-46* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 04/13/2010, have been entered and made of record. Claims 1-2, 4-8, 10-15, 17-19, 21-26, 28-30 and 32-46 are pending.

Response to Arguments

2. Applicant's arguments with respect to claims 1-2, 4-8, 10-15, 17-19, 21-26, 28-30 and 32-46 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-2, 5, 14-15, 25-26, 36-37, 39-41, 43, and 45 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa (US 6,549,650) in view of Yang ("A Stitching Algorithm of Still Pictures with Camera Translation", Proc of the First International Symposium on Cyber Worlds (CW'02), 2002, IEEE).

Regarding claim 1, Ishikawa discloses a method for generating a wide image video sequence (moving panoramic image) of a scene being recorded using a device (a binocular image sensing apparatus 6001, Fig 38) having at least two video cameras (right and left image sensing optical systems 6004b and 6004a, Fig 38) substantially co-located in a

predetermined relationship to each other such that there will be an overlap between images from the respective cameras (synthesizing the right and left images 6201b and 6201a into a single panoramic image, an overlapping region for joining the two, Fig 40), said method comprising the steps of:

a. identifying corresponding regions in overlapping parts of the images from the respective cameras (the image correction/overlapping amount calculator 6016 detects the overlapping regions of the images 6201b' and 6201a' by finding correspondences among their pixel values using an algorithm such as template matching, step S1214) (Figs 39, 41, and col. 36, line 35 to col. 37, line 5).
b. calculating a projective transform for pixels of the images from at least one of said cameras based on a relation between said corresponding regions (in step S1215, the image correction/overlapping amount calculator 6016 corrects the sensed images, i.e., compensates for the luminance and color differences between the two, right and left images that may be produced by the image sensing optical systems 6004b and 6004a, and corrects trapezoidal distortion, projection transform) (Figs 38-39 and col. 37, lines 6-11);
c. synchronously recording video sequences using each of said at least two video cameras (the right and left images are sensed in step S1208 as the right and left images that may be produced by the image sensing optical systems 6004b and 6004a) (col. 37, lines 6-22); and
d. generating a wide image video sequence by combining said synchronously recorded video sequences using said projective transform (after such corrections

and calculation of the overlapping amount, the image synthesizer 6015 synthesizes a panoramic image in step S1216, as the two images to be synthesized have been subjected to image correction in the recording mode) (col. 37, 12-22).

Ishikawa does not disclose identifying corresponding lines in overlapping parts of the images and calculating a projective transform for pixels of the images based on a relation between said corresponding lines. However, Yang discloses identifying corresponding lines in overlapping parts of the images (detect the position of perspective parallax and find out the overlapping region between two neighboring images, as illustrates in Fig 6, the pattern detection is firstly carried out, which includes line detection to extract outlines of different regions in an image; i.e., to divide the image into regions which are made up of pixels which have something in common, see Section 3, Algorithm Overview, on page 3) and calculating a projective transform for pixels of the images based on a relation between said corresponding lines (pattern detection and point-based matching are used to estimate the perspective parallax, as shows in Section 4, the Laplacian Mask is applied for edge detection and in Section 5, the difference pixel position is calculated and the points which takes the maximum value is considered as the base point, see pages 3-5, Yang).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the stitching algorithm as taught by Yang into Ishikawa's system, so as the proposed algorithm is rather simple, but the algorithm is capable to reduce the negative influence caused by the perspective parallax and estimate stitching position between two images, see Section Conclusion on page 6, Yang).

Regarding claim 2, the limitations of claim 1 are taught above, Ishikawa discloses the

synchronously recorded video sequences are stored in a memory means (a memory 6007, Fig 38) (col. 34, line 55 – col. 35, line 2, Ishikawa).

Regarding claim 5, the limitations of claim 1 are taught above, Ishikawa discloses the wide image video sequence (moving panoramic image) is stored on a memory means (a memory 6007, Fig 38) (col. 34, line 55 – col. 35, line 2, Ishikawa).

Regarding claim 14, this claim differs from claim 1 only in that the claim 1 is a method claim whereas claim 14 recites similar features in an apparatus format with an additional feature of a processor and a memory storage area. Ishikawa discloses a processor (a synchronized signal generator 6005, Fig 38) and memory storage area (i.e. a memory 6007, Fig 38) (col. 35, lines 41-55). Thus the apparatus claim 14 is analyzed and rejected as previously discussed with respected to claim 1 above.

Regarding claim 15, this claim recites same limitations as claim 2. Thus it is analyzed and rejected as previously discussed with respect to claim 2 above.

Regarding claim 25, this claim differs from claim 1 only in that the claim 1 is a method claim whereas claim 25 recites similar features in an apparatus format with feature of a computer-readable medium having computer-readable program code portions stored therein. Ishikawa discloses a storage medium that stores a program for controlling a binocular image sensing apparatus for sensing a pair of images having parallax using two image sensing optical systems can store program codes (col. 50, lines 1-5). Thus the apparatus claim 25 is analyzed and rejected as previously discussed with respected to claim 1 above.

Regarding claim 26, this claim recites same limitations as claim 2. Thus it is analyzed and rejected as previously discussed with respect to claim 2 above.

Regarding claim 36, Ishikawa discloses a video recording apparatus (a binocular image sensing apparatus 6001, Fig 38) having at least two video cameras (right and left image sensing optical systems 6004b and 6004a, Fig 38) substantially co-located in a predetermined relationship to each other such that there will be an overlap between images from the respective cameras (synthesizing the right and left images 6201b and 6201a into a single panoramic image, an overlapping region for joining the two, Fig 40), the video recording apparatus comprising:

- a microprocessor (a synchronized signal generator 6005, Fig 38) (col. 35, lines 41-55);
- a memory storage area (i.e. a storage medium that stores a program) storing a program (a storage medium that stores a program for controlling a binocular image sensing apparatus for sensing a pair of images having parallax using two image sensing optical systems can store program codes) (col. 50, lines 1-5) for:
    a. identifying <u>corresponding regions</u> in overlapping parts of the images from the respective cameras (the image correction/overlapping amount calculator 6016 detects the overlapping regions of the images 6201b' and 6201a' by finding correspondences among their pixel values using an algorithm such as template matching, step S1214) (Figs 39, 41, and col. 36, line 35 to col. 37, line 5).
    b. calculating a projective transform for pixels of the images from at least one of said cameras based on a relation between said <u>corresponding regions</u> (in step S1215, the image correction/overlapping amount calculator 6016 corrects the sensed images, i.e., compensates for the luminance and color differences

between the two, right and left images that may be produced by the image sensing optical systems 6004b and 6004a, and corrects trapezoidal distortion, projection transform) (Figs 38-39 and col. 37, lines 6-11);

c. synchronously recording video sequences using each of said at least two video cameras (the right and left images are sensed in step S1208 as the right and left images that may be produced by the image sensing optical systems 6004b and 6004a) (col. 37, lines 6-22); and

d. generating a wide image video sequence by combining said synchronously recorded video sequences using said projective transform (after such corrections and calculation of the overlapping amount, the image synthesizer 6015 synthesizes a panoramic image in step S1216, as the two images to be synthesized have been subjected to image correction in the recording mode) (col. 37, 12-22).,

- a read and write memory storage area (a memory 6007, Fig 38) for storing data relating to recorded video sequences from the at least two video cameras (col. 35, lines 41-55);
- an input component (camera controller 2011, Fig 37) for receiving input of parameters, and input of recorded video sequences (col. 34, lines 17-22); and
- an output component (LCD control circuit 1029, Fig 37) for outputting of a wide image video sequence (col. 34, lines 23-33).

Ishikawa does not disclose identifying <u>corresponding lines</u> in overlapping parts of the images and calculating a projective transform for pixels of the images based on a relation

between said <u>corresponding lines</u>. However, Yang discloses identifying corresponding lines in overlapping parts of the images (detect the position of perspective parallax and find out the overlapping region between two neighboring images, as illustrates in Fig 6, the pattern detection is firstly carried out, which includes <u>line detection</u> to extract outlines of different regions in an image; i.e., to divide the image into regions which are made up of pixels which have something in common, see Section 3, Algorithm Overview, on page 3) and calculating a projective transform for pixels of the images based on a relation between said corresponding lines (pattern detection and point-based matching are used to estimate the perspective parallax, as shows in Section 4, the Laplacian Mask is applied for edge detection and in Section 5, the difference pixel position is calculated and the points which takes the maximum value is considered as the base point, see pages 3-5, Yang).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the stitching algorithm as taught by Yang into Ishikawa's system, so as the proposed algorithm is rather simple, but the algorithm is capable to reduce the negative influence caused by the perspective parallax and estimate stitching position between two images, see Section Conclusion on page 6, Yang).

Regarding claim 37, the limitations of claim 1 are taught above, Ishikawa does not disclose the corresponding lines depict a line naturally occurring in the scene being recorded. However, Yang discloses the corresponding lines depict a line naturally occurring in the scene being recorded (edge of the building, Fig 4, Yang).

Regarding claim 39, the limitations of claim 1 are taught above, Ishikawa does not disclose the step of identifying said corresponding lines is performed manually. However,

Yang discloses the step of identifying said corresponding lines is performed manually (the image in Fig 5 can not be generated automatically and the positioning of input images was carried out manually) (first Para, first column, on page 2, Section 1 Introduction, Yang).

Regarding claim 40, the limitations of claim 1 are taught above, Ishikawa does not disclose the step of identifying said corresponding lines is performed automatically. However, Yang discloses the step of identifying said corresponding lines is performed automatically (the authors proposed a method to stitch still image taken by a camera with translation and generate a panoramic image automatically) (abstract, Yang).

Regarding claims 41, 43, and 45, these claims recite same limitations as claim 37. Thus they are analyzed and rejected as previously discussed with respect to claim 37 above.

5. Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa (US 6,549,650) in view of Yang (A Stitching Algorithm of Still Pictures with Camera Translation, Proc of the CW'02, IEEE), and further in view of Alonso (US 6,445,293).

Regarding claim 4, the limitations of claim 1 are taught above, Ishikawa in view of Yang does not disclose the wide image video sequence is transmitted live. However, Alonso discloses the wide image video sequence is transmitted live (the camera system sets the front camera as output image and transmits live video out from this camera) (3:56-65, Alonso).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the imaging pickup device as taught by Alonso into Ishikawa and Yang's device, as the suggestion/motivation would have been to guarantee that the camera system will remain in the alarm state in case of an emergency (1:36-39 and 3:41-45, Alonso).

6. Claims 6-8, 10, 17-19, 21, 28-30, and 32 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa (US 6,549,650) in view of Yang (A Stitching Algorithm of Still Pictures with Camera Translation, Proc of the CW'02, IEEE), and further in view of Chang (US 7,307,654).

Regarding claim 6, the limitations of claim 1 are taught above, Ishikawa in view Yang does not disclose a process according to this claim. However, Chang discloses a process comprises the following steps:

a. starting of calibration process (step 110, Fig 3) (at 110, a predesigned calibration pattern 50 is displayed in front of planar background 18, i.e. on front planar surface 44) (4:56-5:11, Chang);
b. synchronizing the sequences from each of the at least two cameras (blocks 112 and 116 occur simultaneously, and blocks 114 and 118 occur simultaneously or near simultaneously) (4:56-5:11, Chang);
c. computing inter-image projective transformations (step 122, Fig 3) (the correspondence mapping and geometric parameters of planar background 18 determined at 120 are utilized to compute both internal and external calibration parameters of first camera 14 and second camera 16) (5:32-53, Chang);
d. using the transformations to refer each image to a common reference frame (step 120, Fig 3) (at 120, CPU 30 compares the robust features from the first and second images to the known characteristics of calibration pattern 50 and performs a correspondence mapping and the correspondence mapping entails locating each captured robust characteristic of calibration pattern 50 in first image 14 and noting

the spatial relationship of the captured robust characteristics) (5:12-31, Chang);

e. selecting a real or virtual reference camera such that certain lines on the pitch or stadium arc substantially horizontal and substantially parallel in the wide image (step 122, Fig 3) (the overall spatial relationship of first camera 14, second camera 16, and planar background 18 is used to determine a first coordinate system with respect to first camera 14 and a second coordinate system with respect to second camera 16) (5:32-53, Chang);

f. selecting a rectangular region of interest within the wide image (the correspondence mapping and geometric parameters of planar background 18, Fig 1, as the planar background 18 is determined at 124 based upon the calibration parameters of each camera) (5:32-53, Chang); and

g. storing the computed values resulting from the calibration process to be used as the calibration parameters (once the two coordinate systems are derived, the calibration process is complete and the first subject image or video is recorded by first camera 14 and transferred to CPU 30 via first video capture device 32) (5:32-6:7, Chang).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the calibration process as taught by Chang into Ishikawa and Yang's device, as the suggestion/motivation would have been to enable the controller which is capable of performing the calibration, analysis, and interpolation computations to derive a synthesized image, to create synthesized images allows the user to select the most

satisfactory angle to view the scene in order to better ensure that the specific region of interest at a particular time instance is accessible to the user (3:29-46 and 10:50-64, Chang).

Regarding claim 7, the limitations of claims 1 and 6 are taught above, Ishikawa in view of Yang does not disclose the step of determining lens distortion parameters for each camera and correcting radial distortion in each image. However, Chang discloses the step of determining lens distortion parameters for each camera, and correcting radial distortion in each image (adapted to stretch the synthesized video image on the video display 20 to remove any parallax distortions) (3:47-67, Chang).

Regarding claim 8, the limitations of claims 1 and 6 are taught above, Chang discloses the step of selecting non-linear distortion parameters to reduce perspective distortion of the image (the internal calibration parameters include but are not limited to the focal length and lens distortion of each camera) (5:32-53, Chang).

Regarding claim 10, the limitations of claim 1 are taught above, Chang discloses the step b (step 114 and 118, Fig 3) is performed automatically by an algorithm for identification of corresponding features in concurrent video images and the coordinates for the corresponding features are input via a computer means (the second image is transferred from second camera 16 to CPU 30 via second video capture device 34. CPU analyzes the second image for the robust features of calibrated pattern 50) (4:56-5:11 and Fig 3, Chang).

Regarding claims 17, 18, 19, and 21, these claims recite same limitations as claims 6, 7, 8, and 10, respectively. Thus they are analyzed and rejected as previously discussed with respect to claims 6, 7, 8, and 10 above.

Regarding claims 28, 29, 30, and 32, these claims recite same limitations as claims 6, 7, 8, and 10, respectively. Thus they are analyzed and rejected as previously discussed with respect to claims 6, 7, 8, and 10 above.

7. Claims 11, 13, 22, 24, 33, and 35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa (US 6,549,650) in view of Yang and Chang, and further in view of Matsumoto (US 2003/0071906).

Regarding claim 11, the limitations of claim 1 are taught above, Chang discloses the method according to claim 1 which comprises the following steps:

a. apply the calculated calibration parameters (at 110, a predesigned calibration pattern 50 is displayed in front of planar background 18, i.e. on front planar surface 44) (4:56-5:11 and step 110, Fig 3, Chang);

c. retrieving one new image from each camera (at 112, first camera 14 captures a first image of calibration pattern 50 and at 116, second camera 16 captures a second image of calibration pattern 50) (4:56-5:11 and steps 112 and 116, Fig 3, Chang);

d. selectively updating the parameters needed to transform intensities in one or more of the cameras to eliminate visible seams (correspondence mapping entails locating each captured robust characteristic of calibration pattern) (5:12-31 and step 120, Fig 3, Chang);

e. selectively adjusting intensities in the images from one or more of the cameras (a similar correspondence mapping procedure is completed using the second image to determine the geometric parameters of planar background 18 with respect to

second camera 16) (5:12-31 and step 120, Fig 3, Chang);

f. creating the current seamless, wide image from the current images from each camera (map corresponding robust features to determine geometric parameters of planar background, since the calibration pattern 50 is a planar surface located upon planar background 18, the geometric parameters of planar background with respect to first camera 14 are directly computed from the mapped correspondence information) (5:12-31 and step 120, Fig 3, Chang); and

g. outputting the image to a display or to a memory storage area (storage device 37, Fig 1) (after all calibration parameters are determined, the overall spatial relationship of first camera 14, second camera 16, and planar background 18 is determined at 124 based upon the calibration parameters of each camera and the image is to a display or to a memory means) (5:32-53, Chang).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the calibration process as taught by Chang into Ishikawa and Yang's device, as the suggestion/motivation would have been to enable the controller which is capable of performing the calibration, analysis, and interpolation computations to derive a synthesized image, to create synthesized images allows the user to select the most satisfactory angle to view the scene in order to better ensure that the specific region of interest at a particular time instance is accessible to the user (3:29-46 and 10:50-64, Chang).

Ishikawa in view of Yang and Chang does not disclose a calibration process is repeated until the end of the sequence is reached or return to step b until end of generation of the video sequence. However, Matsumoto disclose a calibration process is repeated until the end of the

sequence is reached (the calibration process is repeated at a predetermined interval until the release switch (SW1) 126 or the release switch (SW2) 127 is pressed, Figs 7-9) ([0183], Matsumoto)

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the calibration process as taught by Matsumoto into Ishikawa, Yang, and Chang's device, as the suggestion/motivation would have been to enable that the more accurate correction data can be obtained ([0183], Matsumoto).

Regarding claim 13, the limitations of claims 1 and 11 are taught above, Ishikawa in view of Yang does not disclose the new images from each video camera are read from a memory means. However, Chang discloses the new images from each video camera are read from a memory means (storage device 37, Fig 1) (after all calibration parameters are determined, the overall spatial relationship of first camera 14, second camera 16, and planar background 18 is determined at 124 based upon the calibration parameters of each camera and the image is to a display or to a memory means) (5:32-53, Chang).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the calibration process as taught by Chang into Ishikawa and Yang's device, so as the image data (e.g., video images, image shape and color information) stored in storage device 37 will be available for use at a later time (6:63-7:20 Chang).

Regarding claims 22 and 24, these claims recite same limitations as claims 11 and 13, respectively. Thus they are analyzed and rejected as previously discussed with respect to claims 11 and 13 above.

Regarding claims 33 and 35, these claims recite same limitations as claims 11 and 13, respectively. Thus they are analyzed and rejected as previously discussed with respect to claims 11 and 13 above.

8. Claims 12, 23 and 34 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Yang, Chang and Matsumoto, and further in view of Alonso (US 6,445,293).

Regarding claim 12, the limitations of claims 1 and 11 are taught above, Ishikawa in view of Yang, Chang and Matsumoto does not disclose the new images from each camera are read from live sources, each such source comprising a video camera. However, Alonso discloses the new images from each camera are read from live sources, each such source comprising a video camera (the camera system sets the front camera as output image and transmits live video out from this camera) (3:56-65, Alonso).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the imaging pickup device as taught by Alonso into Ishikawa, Yang, Chang and Matsumoto's device, so as the camera system will be capable to used by the main system to increase system versatility and can get any advanced feature shown in the main video system (3:41-45, Alonso).

Regarding claims 23 and 34, these claims recite same limitations as claim 12. Thus they are analyzed and rejected as previously discussed with respect to claim 12 above.

9. Claims 38, 42, 44, and 46 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Ishikawa in view of Yang, and further in view of Kreitman (US 5,731,846).

Regarding claim 38, the limitations of claims 1 and 37 are taught above, Ishikawa in view of Yang does not disclose the scene being recorded is a sports field, and wherein said line naturally occurring in the scene being recorded is a sports field mark line. However, Kreitman discloses the scene being recorded is a sports field (tennis court 32, Fig 2), and wherein said line naturally occurring in the scene (a plurality of lines 38 in the court 32) being recorded is a sports field mark line (col. 5, lines 44-49, Kreitman).

Thus it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the tennis court as taught by Kreitman by using the Ishikawa and Yang's device, so as the background space is a sports arena having lines marked on it, and the tennis court can be selected two vertical and two horizontal lines from the extracted features and determines their intersection points and generates a transformation matrix from the corner points of each rectangle of the model of the feature intersection points (col. 3, lines 17-25, Kreitman).

Regarding claim 42, the limitations of claim 14 are taught above, Ishikawa in view of Yang discloses the projective transform refers each image to a common reference frame (i.e. line detection and point pattern match, see discussion in claim 1 above). Ishikawa in view of Yang does not disclose the scene being recorded is a sports field. However, Kreitman discloses the scene being recorded is a sports field (tennis court 32, Fig 2), and the certain lines (a plurality of lines 38 in the court 32) on the sports field become essentially horizontal and parallel in the wide image video sequence (Fig 11A illustrates certain lines on the scene become essentially horizontal and parallel in the wide image video sequence) (col. 5, lines 44-49 and col. 9, lines 12-39, Kreitman).

Regarding claims 44 and 46, these claims recite same limitations as claim 42. Thus they are analyzed and rejected as previously discussed with respect to claim 42 above.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- Wu et al. (US 6,801,653) provide an image processing apparatus and method as well as a medium by which a corresponding point can be found out and matching between images can be performed with a higher degree of accuracy;
- Oliensis (US 6,859,549) provides an algorithm for recovering structure and motion from points, lines and/or image intensities;
- Kitaguchi et al. (US 6,947,076) provide an image pickup apparatus for picking up an image of a target object in divisions as a plurality of partial images which overlap by a predetermined quantity; and
- Higurashi et al. (US 6,995,790) provide an image processing apparatus which can correct images and be joined by a simple operation based on images themselves without knowing coefficients such as distortion of a camera, and an image processing apparatus which can effectively synthesize an image of a wide dynamic range image from only images.

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kent Wang whose telephone number is 571-270-1703. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ngoc Yen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-270-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://portal.uspto.gov/external/portal/pair. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer

Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KW
14 June, 2010

/JOHN M. VILLECCO/
Primary Examiner, Art Unit 2622
June 16, 2010